

REMARKS

The Non-Final Office Action mailed July 13, 2010, has been received and carefully noted. Claims 1-24 are currently pending in the subject application and are presently under consideration.

Please amend the claims as shown above. Support for the amendments can be found in the Specification as filed.

Favorable reconsideration of the pending claims is respectfully requested in view of the amendments and the following comments.

Examiner Interview

An Examiner Interview was conducted on August 3, 2010, with Examiner Jason Mitchell. The Applicants thank the Examiner for courtesies extended during the Interview. In the Interview, the Applicants' invention, the cited prior art references, and a proposed amendment to independent claim 1 was discussed. No formal agreement was reached in the Interview.

Objection to Claim 1

Claim 1 is objected to because of an informality that line 5 recites "the plurality of first *figure* of merit" when it should read "the plurality of first *figures* of merit." The Applicants have amended claim 1 and thus obviating the need to correct this informality. In view of the amendments, the Applicants respectfully request that the objection to claim 1 be withdrawn.

Rejection of Claims Under 35 U.S.C. §101

Claims 1-12 and 21-24 are rejected under 35 U.S.C. §101 because the claimed invention is allegedly directed to non-statutory subject matter.

Claims 1, 4, 8, and 10-12 have been amended to recite *executed by a computer system* so that the claims are tied to a particular machine, namely a computer system, that is structurally and functionally interconnected with the program in a manner which enables the program to act as a computer component and realize its functionality.

Claim 21 has been amended to recite *a non-transitory machine-accessible storage medium* so that the claims are now clearly directed to patentable subject matter as provided by the statute.

In view of the amendments, the Applicants respectfully submit that claims 1-12 and 21-24 are directed to statutory subject matter and respectfully request withdrawal of this rejection.

Rejection of Claims Under 35 U.S.C. §102

Claims 1, 2, 4, 13-15, 19, 21, and 23 are rejected under 35 U.S.C. §102(b) as being anticipated by Chow and Wu, “Feedback-Directed Selection and Characterization of Compiler Optimizations,” Workshop on Feedback-Directed Optimization (1999) (“Chow”). The Applicants respectfully request withdrawal of this rejection because the claims as amended are not anticipated by Chow.

Independent claim 1 now recites:

A system for evaluating and selecting programming code, comprising:

a first evaluator, executed by a computer system, to measure power consumption of a plurality of input binaries and compute a plurality of power consumption figures of merit for the plurality of input binaries, respectively, based on the measured power consumption;

a second evaluator, executed by the computer system, to measure code size of the plurality of input binaries and compute a plurality of code size figures of merit for the plurality of input binaries, respectively, based on the measured code size; and

a binary selector, executed by the computer system, to compute a plurality of overall figures of merit for the plurality of input binaries, respectively, wherein each overall figure of merit is computed as a function of the respective power consumption figure of merit and the respective code size figure of merit of that input binary,

the binary selector to compare the plurality of overall figures of merit with each other to select one of the plurality of input binaries as having the highest or lowest overall figure of merit.

Chow discloses a method for optimizing the selection of compiler switches for different purposes, such as speed, code size, etc. See Chow page 2, column 1, paragraph 1. To select

optimized compiler switches, Chow measures the performance for each binary generated for various switch combinations and analyzes the results. See Chow page 4, column 2, paragraph 1. In other words, Chow teaches evaluating performance and computing a performance figure of merit for each binary generated for various switch combinations. In addition, Chow teaches evaluating code size and computing a code size figure of merit for each binary generated for various switch combinations.

However, Chow does not disclose *a binary selector, executed by the computer system, to compute a plurality of overall figures of merit for the plurality of input binaries, respectively, wherein each overall figure of merit is computed as a function of the respective power consumption figure of merit and the respective code size figure of merit of that input binary*, as recited in Applicants' claim 1. The Examiner concedes that Chow "does not explicitly disclose the binary selector is to compute an overall figure of merit for each of the input binaries as a function of the input binary's first and second figures of merit." See Office Action mailed July 13, 2010, page 8. However, the Examiner alleges that Lagergren (U.S. Patent Application Publication No. 2004/0117779) ("Lagergren") teaches this limitation and quotes the following from paragraph [0025] of Lagergren: "The output of the code introspection process is a number of factors, together with associated weights that are then used by the system in calculating the size metric." Id.

Lagergren discloses that the size of the application code is used as the size metric for performing optimization. See Lagergren paragraph [0016]. The size metric is calculated using factors, together with associated weights. Id., paragraph [0025]. These factors may include basic block count, operation tuple count, register pressure, recognized patterns, preference for aggressive in-lining, maximum population count of a basic block live inset, control flow, and the number of code operations. Id., paragraphs [0025], [0026], and [0028]. In other words, Lagergren teaches using code size to compute a figure of merit (i.e., size metric), and the factors are only used to inform this sole figure of merit. Thus, Lagergren arguably teaches *a second evaluator to measure code size and compute a code size figure of merit based on the measured code size*, as recited in Applicants' claim 1. The method of calculating the size metric in Lagergren could arguably be used to evaluate another characteristic such as those disclosed in Chow. However, it is not obvious to one of ordinary skill in the art to go one step further and use the method taught

in Lagergren to *compute an overall figure of merit as a function of the power consumption figure of merit based on power consumption and the code size figure of merit based on code size*, as recited in Applicants' claim 1.

Independent claim 13 includes some elements analogous to those discussed above in regard to claim 1 including *computing a current overall FOM as a function of the current code size FOM and the current performance FOM*. For at least the reasons mentioned above in regard to claim 1, claim 13 is not obvious over the cited references.

Independent claim 21 includes some elements analogous to those discussed above in regard to claim 1 including *compute an overall cost for the binary as a function of the performance cost and the power consumption cost*. For at least the reasons mentioned above in regard to claim 1, claim 21 is not obvious over the cited references.

Any dependent claims not mentioned above are submitted as not being anticipated or obvious, for at least the same reasons given above in support of their base claims.

It should be noted that not all of the assertions made in the Office Action, particularly those with respect to the dependent claims, have been addressed here, in the interest of conciseness. The Applicants reserve the right to challenge any of the assertions made in the Office Action by the Examiner.

CONCLUSION

In view of the foregoing, it is believed that all claims now pending patentably define the subject invention over the prior art of record, and are in condition for allowance and such action is earnestly solicited at the earliest possible date. If the Examiner believes a telephone conference would be useful in moving the case forward, he is encouraged to contact the undersigned at (310) 207-3800.

If there are any additional fees due in connection with the filing of this response, please charge those fees to our Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Dated: August 18, 2010

By Farzad E. Amini, Reg. No. 42,261

1279 Oakmead Parkway
Sunnyvale, CA 94085-4040
(310) 207-3800

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Marilyn Bass
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